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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,248	09/30/2003	Masahiko Yamada	243144US-3DIV	2856
22850	7590	01/24/2006		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER GREENE, DANIEL LAWSON	
			ART UNIT 3663	PAPER NUMBER
DATE MAILED: 01/24/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/673,248	YAMADA ET AL.	
	Examiner	Art Unit	
	Daniel L. Greene Jr.	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4,6,7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 is/are allowed.
- 6) ☐ Claim(s) 2,6 and 7 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/21/2005 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 6 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102 and 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. **Claim 2 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Admitted Prior Art (APA).**

APA, Figure 2, clearly shows applicants invention as claimed wherein it is understood that the coolant collision portion is pin (17).

As stated in the Advisory action mailed 10/11/2005 applicant's arguments are directed towards statements of intended use that do not define over the art of record including the APA since pin 17 does indeed have a coolant collision portion (considered to be that portion of pin 17 that is directly in front of drain hole 15) inherently capable of performing the intended use of "increases pressure drop of the coolant during a scram". Although applicant argues pin 17 "does not interfere with the flow of coolant flowing in the drain hole 15 in the direction P" it is noted that direction P is NOT the direction coolant flows during a scram. It is considered that pin 17 does not interfere with the flow of coolant in the P direction because, for example, the water is free to flow around pin 17 into drain hole 15, however during a scram, water will be forced through the drain hole 15 in the opposite direction of P (at a high rate of speed). Water flowing through the drain hole during a scram forms a column (or stream) of water that will impinge upon pin 17 thus increasing pressure in an attempt to flow past said pin 17. Basic fluid flow can be resorted to for a discussion of pressure drops incurred when objects are placed within a stream of fluid however placing ones finger in front of a garden hose (with water flowing with force out of it) would clearly simulate/demonstrate the pressure exerted on the coolant collision portion of pin 17 during a scram.

5. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA as applied to claim 2 above and further in view of U.S. Patent 5,663,993 to Danielson et al. (hereinafter Danielson)

Danielson teaches in the abstract, figures 3 and 4 and column 1 lines 46+ that it is old and advantageous in the nuclear art to have a multi chamber flow metering bore for regulating coolant flow through a nuclear fuel assembly component.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the drain hole of the APA with the teachings of Danielson to include a first large inner diameter portion at a distal end, a second large inner diameter portion at a seat side and a small inner diameter portion between the first and the second large inner diameter portions for the benefits of, for example, facilitating the channeling of the coolant flowing into the hole during a reactor scram, regulating coolant flow into or out of the control rod guide tube, regulating coolant flow into or out of the control rod guide tube during a reactor scram for the benefit of controlling control rod decent speed, etc.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA as applied to claim 2 above and further in view of 2002-40182 (hereinafter '182) listed on the IDS received 11/8/2004.

Figure 2 of '182 clearly teaches it is known in the nuclear art for the drain hole to include a first large inner diameter portion at a distal end, a second large

inner diameter portion at a seat side and a small inner diameter portion between the first and the second large inner diameter portions.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the drain hole of the APA with the teachings of '182 to include a first large inner diameter portion at a distal end, a second large inner diameter portion at a seat side and a small inner diameter portion between the first and the second large inner diameter portions for the benefits of, for example, facilitating the channeling of the coolant flowing into the hole during a reactor scram, regulating coolant flow into or out of the control rod guide tube, regulating coolant flow into or out of the control rod guide tube during a reactor scram for the benefit of controlling control rod decent speed, etc. as such is no more than the use of common knowledge in the nuclear art.

Allowable Subject Matter

7. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claim 9 is allowable.

Conclusion

9. Examiner's Note: Examiner has cited particular columns and line numbers in the references as applied to the claims for the convenience of the applicant. Although the


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specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel L. Greene Jr. whose telephone number is (571) 272-6876. The examiner can normally be reached on Mon-Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DIG 
2006-01-18


JACK KEITH
SUPERVISORY PATENT EXAMINER